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THE USE OF ANTIBIOTICS IN ANIMAL FEEDING-STUFFS

The announcement by Jukes and his co-workers in America in 1949 of the discovery of a new growth factor in antibiotic fermentation products has stimulated a great deal of interest and research work in this field of animal nutrition.

It has been known for many years that protein of animal origin is essential for good growth in the young animal, and the factor responsible has been named the "animal protein factor." Research showed that this factor was not protein in nature, but rather a vitamin substance now closely identified with the vitamin B_{12} factor, study of which showed that certain micro-organisms produced this vitamin factor during fermentation.

In a study of the vitamin B_{12} value of aureomycin fermentation products, Jukes & Stokstad found in 1949 that these were active in the chick, producing enhanced growth, even in the presence of adequate amounts of all the known vitamins, including vitamin B_{12}, and in the following year Jukes and his co-workers (Jukes, 1950), working on the growth promoting value of aureomycin on pigs, published a paper which has stimulated a considerable amount of work throughout the world, using a large variety of antibiotics.

So far as this country is concerned, work has been largely with penicillin and aureomycin, although streptomycin, terramycin and bacitracin are also known to be effective in animal feeding. There appears to be a difference in the effectiveness of these antibiotics and at the moment the field seems to have narrowed down, in this country at least, to penicillin and aureomycin.

While the primary purpose for which these antibiotics were produced was for the control of disease, their employment in animal feeding-stuffs has proved a very valuable secondary use, enabling farmers to increase production efficiency.

In addition to their growth promoting effect antibiotic supplements, under some conditions, may improve the efficiency of food utilisation in immature animals. The actual degree of improvement will vary considerably according to the composition of the food, the method of feeding and housing and the type of stock. As an example, pigs reared under conventional United Kingdom conditions and using National Pig Food formulae, by use of antibiotic supplements, can be brought to slaughter weight with an average economy of 5 per cent. in the total amount of food consumed. Under less favourable conditions, or with other types of ration, greater economies may be expected.

Some of the early reports on the use of these antibiotics tended to be rather extravagant in their claims and further work during the past three or four years has shown that the enhanced growth rate is obtained only in certain circumstances, while results have varied considerably in the hands of different workers.

The mode of action of these antibiotics in animal feeding-stuffs is still uncertain, but there appears to be ample evidence to indicate that under certain conditions at least, the beneficial results obtained seem to be due to their therapeutical properties. In other words, the beneficial effect on animal growth appears to be either the result of changes in the population of the micro-organisms found in the gut, or the result of suppression of an infectious condition which exists without obvious clinical manifestations, but which prevents the animals growing at their optimal rate. Studies have been made on the effect of antibiotics on the micro-organism population of the gut, but the results have been inconclusive, possibly due to our present-day bacteriological methods being unsatisfactory for the study of this problem, and further because the nutritional importance of the micro-organisms of the gut is not yet fully realised. It is known, however, that in the intestinal tract there are organisms which synthesise certain vitamins and other essential nutrients, while others are less beneficial, and may produce either obvious diseases, or toxins which adversely affect the progress of the young. If this balance is altered by the use, for example, of an antibiotic this will affect the nutrition of the animal. It is possible, therefore, that the antibiotics act by altering the availability or the requirements of certain of the vitamins, or they may in fact suppress a condition due to an infective agent bringing about a disease without obvious signs.

In general terms, it can be said that the antibiotics only affect the growth rate when given by the mouth, although Carpenter (1951) obtained growth response from the injection of streptomycin, and Noland *et al.* (1952) claimed an improved growth rate in baby pigs following the subcutaneous implantation of bacitracin pellets. At the same time, Larson & Carpenter (1952) found that aureomycin when given either by the mouth or by injection was excreted in the faeces, and this may explain these results and support the mode of action involving the intestinal flora. These workers suggested that the aureomycin entered the intestinal tract through the bile.

Some workers, for example, Dyer *et al.* (1952), suggested that the effect of the antibiotics is caused by the action related to certain nutrients and thought that the amino-acids, lysine and methionine, might be involved. Some workers have shown that the growth stimulating factor could be enhanced by the addition of extra riboflavin, pantothenic acid, or lysine to the diet, but other workers have been unable to support this. However, it is certain that it is on all-vegetable diets that the most spectacular growth improvement following the feeding of antibiotics is observed. This is, of course, of great importance to the American farmer where pig and poultry rations are largely of all-vegetable origin, but it is of considerably less importance in this country where, by law, it is necessary for compounders to include proteins of animal origin, such as fish meal or dried milk, in the rations of young stock. However, it is true to say that in many circumstances the requirements of certain vitamins of the B complex for the chick are reduced following antibiotic supplementation of the diet. Nevertheless, even on the diets used in this country, containing all the known essential growth factors, accelerated growth rate can be obtained. This acceleration takes place principally during the early life of the young animal. Robinson *et al.* (1952) showed that an antibiotic effect may occur when the ration does in fact contain 10 per cent. white fish meal.

The use of these antibiotics in feeding-stuffs will not give increased growth in the sense that bigger pigs or poultry will be produced. Antibiotics may enable pigs or poultry to make the best use of the food, and possibly to do so com-

paratively free from the effects of bacterial toxins elaborated in the gut.

Coates (1952) has reported upon the possibility of a growth depressing infection in work carried out together with Cuthbertson and his co-workers. The latter showed that chicks in his laboratory, which had not previously been used for poultry, did not respond in the same way to penicillin as did birds kept in Coates' laboratory, and Cuthbertson's grew as well without the antibiotic as did Coates' with the antibiotic. Coates repeated her work in a new building and obtained better growth with no response to penicillin. These results appear to show that some growth depressing condition existed in the old chick room which was not present in the new premises previously unused for poultry. It was possible to transmit this condition because unless they were given antibiotics the birds in the new room lost weight when chicks from the old room were placed in the same cages.

So far as poultry are concerned, therefore, Coates suggests that the mode of action in antibiotics is twofold : (1) indirect economy of vitamins of the animal protein factor, and (2) suppression of an infection which prevents optimal growth. It may be postulated, therefore, that if this explanation is correct, perfectly healthy chicks free from infection would only respond to antibiotic feeding on an all-vegetable ration.

Age is an essential factor in this matter, and the best results in birds are obtained from day-old until they are about 8 to 10 weeks old, after which the effect gradually tails off and the experimental birds are eventually caught up by the controls. A report by Carpenter & Duckworth (1952) upon birds fed aureomycin, showed that birds fed the antibiotic were 18 per cent. heavier at six weeks of age than birds fed the unsupplemented ration. By 42 weeks of age the controls had caught up in bodyweight with those that had been receiving the aureomycin.

In pigs good results are obtained when the antibiotic is provided early in life, that is in creep feed, when they start eating about three weeks of age, but the supplement has been successfully started later than this. The maximum effect, judged by weight gain and feed conversions, is seen when the pigs are growing rapidly from 10 weeks up to bacon weights.

The use of antibiotics in animals other than pigs or poultry (including turkeys) has not met with great success. The effect in ducks, for example, is largely negative, while in sheep the results have varied considerably. In cattle, however, antibiotics have been shown to be of value when incorporated in calf gruel on farms where white scour had been endemic.

The quantities required for these antibiotics have not been finally stabilised, and penicillin has been used experimentally at a range of levels from 2 to about 30 grammes per ton of feed. Under typical United Kingdom conditions the results so far obtained indicate that the level of penicillin need not be more than about 7 grammes per ton of feed. Aureomycin is usually given in the form of a proprietary preparation which contains 3·6 grammes of aureomycin per lb., together with an appreciable quantity of vitamin B_{12} per lb. It is generally recommended that this product be added at the rate of 5 lb. per ton of food or 18 grammes of aureomycin per ton.

One of the main difficulties of the supplementation of feeding-stuffs with antibiotics is the question of their stability under compounding conditions. It is known, for instance, that penicillin is stable neither to heat nor to water, both of which factors it would meet in the preparation of feeding-stuffs, and this is possibly the reason for the variation in the results obtained experimentally in this country. It has been found that procaine penicillin is more stable and for this reason this modification has been used generally in experimental work. The effects of cubing or pelleting are often more drastic than the straightforward production of mash and provide an obstacle not yet surmounted.

Published evidence suggests that aureomycin is more stable and withstands the effect of compounding better than does penicillin, and comparative assays have shown that under identical conditions there is much less loss of aureomycin than of penicillin. Williams *et al.* (1952) showed that in a preliminary steaming experiment upon amounts of procaine penicillin and aureomycin, the percentage destruction was 67 in the penicillin, while 9·2 of the aureomycin was destroyed.

Certain other factors influence stability ; a marked instance is the acidity of the grist and the presence of certain minerals, especially trace elements such as copper sulphate or potassium iodide. A high acidity or the presence of these trace elements will affect the stability of the antibiotic very markedly on storage for lengthy periods.

It would, however, be unwise, on the basis of the evidence published so far, to generalise about the stability of one antibiotic in comparison with another. Stability is a property which can often be modified by suitable formulation and it can be assumed that this important question is receiving the urgent attention of the manufacturer.

Young pigs, especially young weakly pigs, benefit greatly from the use of antibiotics in their diet. Litters of pigs usually contain one or more small-sized individuals which never seem to keep up in growth with their brothers and sisters and get badly left behind. As the brothers and sisters grow bigger and stronger they leave less for these " runt " pigs to eat and this denial of sufficient food makes them even less able to survive. This type of pig does well on antibiotics, as do badly thriving litters with one or other of the bowel upsets common in young pigs. Here we have conditions which apparently allow the antibiotic to function in its true capacity as an anti-bacterial substance. It is possible by their use to bring to maturity many pigs which would otherwise die, and to do so on less food.

We should not lose sight of the fact that the first responsibility of these antibiotics is the control of bacterial disease. The fear has therefore grown in the minds of many that the use of these antibiotics in feedstuffs might encourage the development of organisms resistant to their curative action, because, after all, the dosage in which these antibiotics is used is very much below the medicinal one, and theoretically would encourage the development of resistant strains of bacteria. We are assured by bacteriologists that this is not likely because the action of these antibiotics appears to be a local one in the gut on the microflora there, and therefore we must realise that the bacterial population is being constantly expelled by normal bowel evacuation and being replaced by a fresh one, which should be just as susceptible as their predecessors.

Secondly, should the organism actually become resistant to whatever antibiotic is involved, the bacteriologists tell us that it would be a simple matter to attack these supposedly resistant organisms by switching to another antibiotic. For instance, if, during the course of feeding a penicillin supplemented ration, an outbreak of disease usually amenable to penicillin should occur, then presumably medication with aureomycin would be effective in overcoming it. Similarly, we could assume that the same would be true if the state of affairs were the other way about.

At the same time we must approach this problem with extreme caution since what we know about micro-organisms demands this. The effect that certain of the antibiotics have on the growth of monilia, for instance, is one example of what can happen.

When antibiotics are fed to chickens from day-old to laying,

they appear to have no effect on egg production, except in the case of birds suffering from bacterial diseases. In the case of birds in poor condition from disease, of course, they improve health and may improve egg production as a result. Under normal conditions, however, what appears to happen is that the birds reach the size of mature birds before those fed ordinarily but they do not come into lay any earlier, and the eggs when laid are of normal size.

Carpenter & Duckworth (1952) concluded that the addition of aureomycin to the ration did not result in any more efficient food utilisation calculated in terms of growth up to 21 weeks of age, nor did it affect subsequent egg production. They comment that birds fed an antibiotic supplemented ration become broody more frequently, but the broody periods were of short duration.

There does not appear to be any carry over of antibiotic into the egg to any extent.

In the case of pigs, information on the value of antibiotics in the rations of sows during gestation and lactation is very scanty. Carpenter (1951) carried out a fairly comprehensive study and showed that supplementation had no effect on litter size or the number of pigs born dead, or on the average weight of the pigs born. Since the weaning weights of the pigs from sows getting the antibiotic were approximately the same as from sows without the antibiotic, the author concluded that little, if any, aureomycin passes into the sow's milk. At the same time reports have been received that such supplementation may result in a reduction in scouring in the young pigs on farms where such scours were usual.

From the information so far obtained, it would appear that once the antibiotic supplemented food has been fed for any length of time, it cannot be stopped suddenly without affecting the growth rate. In pigs and turkeys where this has been done deliberately, it has been shown that the growth rate lessens and the treated animals may eventually show comparatively little difference from the controls.

There is, as yet, insufficient evidence to show the effect of mixing two or more antibiotics but there does not seem to be any advantage in this practice. No ill effects have been noted from supplementing feed with one antibiotic and subsequently changing over to another antibiotic.

It should be emphasised that the dosage of antibiotics to be incorporated in animal feeding-stuffs is very low in comparison with the dosage used for therapeutic purposes. While the doses used in feeding supplements are obviously capable of influencing infection within the alimentary tract, it is doubtful if they can have much systemic effect.

To summarise, therefore, it appears that if pigs or animals are kept under unusually excellent conditions, and free of disease, antibiotic feeding may have little, if any, effect ; if, on the other hand, they are kept under usual farm conditions the young will respond to feeding to a limited extent, but if disease is present in addition, considerable benefit is derived from the supplementation of food with antibiotics. This benefit arises not only from the improvement in the stock itself but in economy of the feeding-stuffs used.

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A PRELIMINARY NOTE ON TREATMENT OF *T. CONGOLENSE* INFECTIONS WITH ETHIDIUM BROMIDE IN CATTLE IN KENYA COLONY

BY

S. G. WILSON and R. FAIRCLOUGH

Since 1938 the two main drugs used in the treatment of cattle trypanosomiasis in Africa have been the phenanthridinium compounds, phenidium chloride (S.897), and dimidium bromide (phenanthridinium 1553). These drugs have been found effective against *Trypanosoma congolense* infections, but they also have some action against *Trypanosoma vivax* infections. Although phenidium chloride is less toxic than dimidium bromide and no cases of photosensitisation have been reported following its use, its low solubility and reported lower activity against *T. congolense* led to its replacement by dimidium bromide.

In certain areas of Kenya, notably in Sotik district and in the Coast Province where dimidium bromide has been used for mass inoculations, photosensitisation in 2 to 4 per cent. of the treated cattle has been a serious sequel. The opportunity therefore to test a different phenanthridinium compound, ethidium bromide (R.D.1572), produced by Messrs. Boots Pure Drug Co. (Pharmaceuticals Division), has been welcomed.

The original trials of ethidium bromide carried out in England by Dr. Woolfe, of Boots Pure Drug Company, against *T. congolense* infection in mice showed the trypanocidal action of ethidium bromide to be superior to dimidium bromide. Preliminary trials at Kabete by Mr. Burdin also showed that animals could tolerate doses up to 5 mg. per kg. of ethidium bromide without signs of toxicity.

In the preliminary trial, at Kabete Veterinary Laboratories, Kenya, on the curative effects of ethidium bromide against *T. congolense*, 25 cattle were used. The strain of *T. congolense* used in this experiment was freshly collected from an infected ox in the Kitui district about 100 miles east of Kabete. Dimidium bromide had not been used with any great frequency in this area and there was therefore little danger that this strain of trypanosome had acquired a drug resistance that might affect results of this trial.

The blood was collected in citrate from the infected ox on April 7th, 1952, brought immediately to Kabete, and on the same day 25 c.c. of the citrated blood were inoculated intravenously into each of 25 bovines.

Thick blood smears were taken every day, stained, and examined for trypanosomes. On the ninth day after inoculation the first *T. congolense* were seen in the blood smears of two animals. On the 13th day after inoculation all the animals showed *T. congolense* infections. Two days later treatment was given to all but the five control animals.

The ethidium bromide easily dissolved in distilled water to form a 1 per cent. solution and was injected subcutaneously without untoward results.

The 25 experimental animals were assigned at random into six groups which were treated as shown in Table I (over-leaf).

Throughout the experiment all the cattle were weighed weekly and blood collected into sodium oxalate, 2 mg. per c.c. of blood, for haemoglobin estimations. These were performed by the Acid Haematin method of Newcomer

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TABLE I

RESULTS FOLLOWING TREATMENT OF 16 ANIMALS WITH ETHIDIUM BROMIDE AND FOUR ANIMALS WITH DIMIDIUM BROMIDE 15 DAYS AFTER INFECTION WITH *T. congolense*

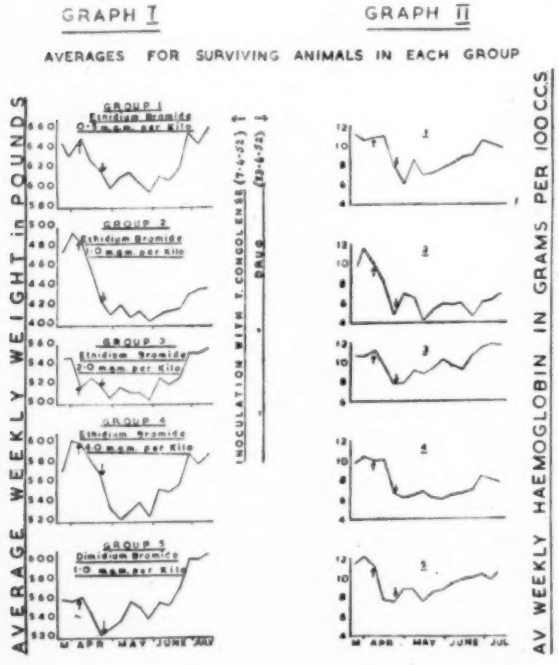
Group	No. of animals	Treatment	Dosage	Results	Remarks
1	4	Ethidium bromide	mg. per kg. 0·5	Tryps. lost in all groups within 24 hours	One animal died after six days' treatment.
2	4	,,	1·0		No deaths.
3	4	,,	2·0		Two animals died sixth and seventh day after treatment.
4	4	,,	4·0	No relapses after four months	One animal died 24 days after treatment.
5	4	Dimidium bromide	1·0		One animal died 34 days after treatment.
6	5	No treatment		All died 17 to 43 days after infection.	

(1923). Other biochemical estimations were performed, but will be recorded in a separate paper (Burdin, 1952).

As can be seen from Table I, all trypanosomes disappeared from the treated animals within 24 hours after treatment and the animals remained free of trypanosomes during daily blood examinations over a period of four months after treatment. The average live weight of the animals in all groups fell during the two weeks after infection, but at the end of the experiment these losses were being rapidly regained and had been exceeded in Groups 1, 3 and 5. The results are shown in Graph I. Haemoglobin results were seen to parallel the weight results and are recorded in Graph II.

GRAPH I

GRAPH II


AVERAGES FOR SURVIVING ANIMALS IN EACH GROUP
AVERAGE WEEKLY WEIGHT in POUNDS
AV WEEKLY HAEMOGLOBIN IN GRAMS PER 100CCS
GROUP 1 Ethidium Bromide 0·5 mgm per Kilo
GROUP 2 Ethidium Bromide 1·0 mgm per Kilo
GROUP 3 Ethidium Bromide 2·0 mgm per Kilo
GROUP 4 Ethidium Bromide 4·0 mgm per Kilo
GROUP 5 Dimidium Bromide 1·0 mgm per Kilo
INOCULATION WITH T. CONGOLENSE (7-4-52)
DAYS (10-4-52)
APR MAY JUNE JUL

The results of this experiment were somewhat marred by the fact that the animals on experiment were originally in very poor condition, having been previously on rinderpest experiments. In addition, some *Babesia bigemina* infections occurred during the course of this experiment which aggravated conditions further. Five of the 20 animals in Groups 1 to 5 died, but in no case were trypanosomes found at time of death. The *post-mortem* lesions suggested that the trypanosome infection in these animals of very low condition caused a further strain to the health of the animals which treatment did not entirely overcome. In a group of animals in reasonable condition it might be expected that fewer deaths would occur.

SUMMARY

Sixteen animals were treated with ethidium bromide at dosage rates varying from 0·5 to 4 mg. per kg. and all were cured of *T. congolense* infection. Four animals died from debility without showing signs of drug toxicity or relapse to infection.

Four animals treated with dimidium bromide at 1 mg. per kg. were also cured but again one death occurred during the experimental period from debility.

Five animals in the control group all died of acute *T. congolense* infection.

It would appear that ethidium bromide is capable of effecting a cure of *T. congolense* infections at comparatively low dosage.

Acknowledgments.—Thanks are due to Mr. Burdin, Veterinary Research Officer, Kabete, for performing the haemoglobin estimations.

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VIBRIO FOETUS INFECTION IN CATTLE

Addressing a meeting of cattle breeders, arranged by the Essex N.F.U., at Chelmsford recently, Mr. J. R. Lawson, Senior Research Officer of the Ministry of Agriculture, said that when *Vibrio foetus* was introduced into a herd by a bull the results could be disastrous for a time by reducing fertility to a very low level. But this was only temporary. Cows in time developed a tolerance to the disease, though a bull, once infected, remained so for a long time—possibly for life.

They did not yet know a lot about the treatment of the disease, but they advocated a period of three months' sexual rest for the animals. He believed the disease had been in existence from time immemorial, but it was only during the last few years that any attention had been paid to it.

There were other causes of infertility, but *Vibrio foetus* was probably the biggest single factor.

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THE SCIENTIFIC FILM ASSOCIATION

Dr. Michael Essex-Lopresti, Cataloguing Officer of the Scientific Film Association Medical Committee, writes that in July the Committee plans to publish a supplement to its Catalogue of Medical Films which was published last May, and adds: "As there must be many films of interest to medical audiences available in this country, details of which are not included in the 1952 Catalogue, the owners or distributors of such films are asked to let me have details of them if they are prepared to lend them for showing to medical audiences. The details we like to have include title of film, running time, summary of contents, date of production, 16 mm. or 35 mm. gauge, sound or silent, colour or black-and-white, free loan or hire, the name of the medical adviser and the address from which the film may be obtained." The address of the Association is 164, Shaftesbury Avenue, London, W.C.2.

CLINICAL COMMUNICATIONS

A CASE OF LIPOMATOSIS IN A BULL AND ITS POSSIBLE INTERFERENCE WITH ABILITY TO SERVE

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Subject.—A pedigree Red Poll bull, born in January, 1945.

An uneventful history was recorded until the animal was sold and used in another herd on October 29th, 1949. He was run out with seven bulling heifers from November 20th, 1949, until December 30th, 1949, when it was seen that the heifers were all returning to service and it was noticed by the farmer that he did not appear to serve properly.

The bull was examined on December 15th, 1949. When attempting to serve, which he was very eager to do, there was a degree of knuckling over on the hind fetlocks, the animal appearing to be in discomfort when attempting to thrust. Health and condition were good, no lameness was present, but appetite was poor. Subsequently, actinomycosis was diagnosed in the lower jaw and a course of iodine treatment prescribed immediately.

A further examination on February 2nd, 1950, showed the bull to be in fair condition but the actinomycotic lesion appeared to be increasing in size and making his attempts to consume the normal amount of food difficult. On being turned out into a yard with a heifer in oestrus he appeared eager to serve and made several efforts to mount, at last being successful. No knuckling over of the fetlocks was observed on this occasion. When mounted the penis could be exposed for only 3 to 4 inches and his repeated attempts to introduce it into the vagina were unsuccessful, resulting merely in drops of what appeared to be creamy coloured semen leaking from the *processus urethrae*. Many such attempts were made continuously in the course of over half an hour. An attempt to collect a sample of semen with the artificial vagina was unsuccessful. A thorough clinical examination of the external genitalia and a rectal examination failed to reveal any detectable abnormality. An unhopeful prognosis was given.

During the night of May 21st-22nd, 1950, the bull bled to death of haemorrhage from the still persistent actinomycosis.

An examination *post mortem* showed a tumour-like covering round the rectum, 2 feet 6 inches in length, and probably secondary or smaller growths in almost all the visceral lymph glands, and a 9-inch-diameter plate-like mass of similar tissue on the peritoneal covering of the rumen. There was no visible involvement of the carcase lymphatic glands.

A histological examination of the *vesiculae seminales* showed the presence of varying degrees of interlobular fibrosis and local inflammatory processes involving the glandular epithelium. It was unfortunate that testicular tissue was unavailable for examination.

Portions of the tumour like tissue were submitted for examination to Mr. I. S. Beattie, B.Sc., M.R.C.V.S., of the Department of Pathology, Royal (Dick) Veterinary College. His report stated that "the portions of tissue submitted were adipose tissue containing large areas of fat necrosis undergoing organisation. . . . The duration of the fat necrosis is estimated at two to three months."

Discussion

Although none of the facts reported above can justify a firm conclusion being reached as to the cause of the unusual service behaviour and the lesions observed *post mortem*, it may not be out of place to put forward tentative suggestions to explain the cause.

The duration of the fat necrosis is estimated at two to three months and hence it may have been present when the bull was examined on February 2nd, 1950. At least, it is not unreasonable to suppose that the lipomatous lesions were present at that time even although undetectable by rectal examination. The extent and location of the lipomatous lesions bear a similarity to those reported by Edgson (1952). The site of the original lesion is open to conjecture and the significance of the histological changes in the *vesiculae seminales* is obscure.

The manner in which the lesions are capable of interfering with the normal act of service similarly is open to conjecture but cases have been noted which strongly suggest that the presence of a moderately hard lesion (or lesions) or foreign body (or bodies) in the abdominal and/or pelvic cavity can cause pain, discomfort or impoverishment of associated organs or nervous dysfunction, sufficient to prevent or interfere with the normal act of service.

A perusal of the records of the bull's dam and grand-dam showed the butter-fat percentage to be normal.

Case 7 in Edgson's (1952) paper is interesting but it is regretted that no specific mention was made concerning service behaviour and fertility of the bull just prior to its illness.

Summary

A case of abnormal service behaviour in a pedigree Red Poll bull is reported which on examination *post mortem* is found to be associated with lipomatosis of the abdominal organs. An attempt is made to relate lesions and symptoms.

Acknowledgment.—We wish to thank Mr. I. S. Beattie for his report.

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A COMPLETE *SCHISTOSOMUS REFLEXUS*

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Subject.—A Guernsey heifer in good bodily condition.

Diagnosis.—The animal was unable to calve, and, on making the initial vaginal examination, the dystocia was found to be due to the presence of a schistosome in visceral presentation.

Procedure.—The abdominal organs of the monster were removed with a view to performing the single dorsal embryotomy which, on previous similar cases, had been successful. It was soon found, however, that in the present instance a simple embryotomy would not suffice and it was therefore suggested to the owner that a caesarean operation was the reasonable course to adopt.

The noteworthy point about the operation was that after incision of the uterus it was possible to find only a "mass of calf" completely covered by a thick membrane which the operator decided to incise carefully. This covering was found to be inverted skin in the form of a sac enclosing the head and legs of the calf. As the foetus was of great diameter, a liberal incision was made in the uterus, but forced traction by the operator and his assistant caused the incision to enlarge at will. The writer prefers this additional tearing under a watchful eye to an original incision of too great a length, as it is associated with less haemorrhage.

The remainder of the operation was completed on orthodox lines, and the heifer made an uneventful recovery.

Reference to Fig. 1 shows the monster with the foetal extremities completely covered by skin. Fig. 2 was taken with the skin reflected after incision.

Fig. 1.

Fig. 2.

Comment

The monster was unusual in that its reflected skin completely enclosed the head and limbs.

As is usual in specimens of *Schistosomus reflexus*, the limbs were imperfect and in this case there was an absence of a hind limb. The other hind leg was attached to an inverted pelvis and showed deformity of the hock and femur.

It is unfortunate that Fig. 1 is somewhat out of focus, and that the viscera had been removed.

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CLINICAL REPORTS*

Thoracic Injuries in Street Accidents to Dogs

Miss J. O. Joshua (Finchley) described an unusual injury following a street accident to a six-year-old Shetland sheepdog bitch. The animal was shocked for 48 hours, but apart from superficial abrasions the injuries were confined to the region of the right chest wall. A large subcutaneous haematoma covered a considerable area of the right chest and caused some mechanical embarrassment of respiration. There was a "hole" immediately lateral to the spine over the 10th to 13th ribs; there was no skin wound but the depression was nearly large enough to take a fist.

Radiography revealed that the 10th and 11th ribs were separated from the spine and pushed forwards; the 12th rib was intact, the 13th separated from the spine and both these were pushed backwards. The effect was as though a retractor had been introduced between ribs 11 and 12. The query arose as to whether heroic surgical treatment should be attempted or if masterly inactivity was the wiser course.

[Six weeks after the accident and with no treatment the bitch is reported to be perfectly normal.]

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Miss M. J. Freak (Potters Bar) showed radiographs of the chest of a one-year-old Boxer bitch. Following a street accident (a head-on collision with a motorcycle while chasing a cat) the bitch had shown symptoms of acute dyspnoea and slight concussion.

On examination, there was a fracture of the left mandible near the articulation, a fracture of the left maxilla and a split carnassial tooth together with gross bruising and nasal blood clot. The chest showed slight deformity over the 9th and 10th ribs on the left side. Dyspnoea was acute, rib movement exaggerated and at first sight the appearance was as of a ruptured diaphragm. On percussion, however, the chest was resonant throughout practically its whole area—on auscultation respiratory sounds could not be heard. An interim diagnosis of pneumothorax appeared on the subsequent radiographs, taken four days later, to be the correct one. The outline of the lung could be seen at some distance from the chest wall and fractures were present in the 9th and 10th ribs on the left side.

A point of interest was the speed of natural recovery. Dyspnoea was much less by the date of the radiograph although respiratory sounds were still difficult to hear. At the end of one week respirations were normal at rest but showed some embarrassment on exercise or excitement and within a fortnight, on auscultation, chest sounds were normal.

* Made to the January meeting of the Central Veterinary Society.

CONFERENCE ON VITAMINS AT MILAN

Under the auspices of the National Research Council of Italy, a conference on the subject of vitamins will be held in the National Museum for Science and Technics, Milan, from April 12th to 16th, 1953. The inaugural address will be delivered on Sunday, April 12th, by Professor Colonnetti, President of the National Research Council (Rome), after which the assembly will visit the Council's exhibition on the scientific aspects of nutrition at the 31st International Samples Fair. Subsequent lectures include "Evolution of the Idea of Vitamin," by Professor S. Visco, Director of the National Institute of Nutrition at the C.N.R. (Rome); "The History of the Discovery of the Vitamins (A general outline of developments during the last three decades)," by Dr. W. R. Aykroyd, Director, Nutrition Division of FAO (Rome); "Vitamins in Zootechny," by Professor Filippo Usuelli, Director of the Institute for General Zootechny at the University of Milan; "Needs and Requirements of Vitamins," by Professor Giuseppe Amantea, Director of the Institute of Human Physiology at the University of Rome; "The Requirements of Vitamins and the Antibiotics," by Professor Vittorio Chini, Director of the Medical Clinic at the University of Bari; "Endogenous Formation of Vitamins in the Higher Animals," by Professor Francesco Cedrangolo, Director of the Institute of Chemistry at the Faculty of Medicine and Surgery of the University of Naples; "Vitamins in Pharmacology," by Professor Pietro Di Mattei, Director of the Institute of Pharmacology at the University of Rome (pharmacology), and Professor Gino Frontali, Director of the Pediatric Clinic of the University of Rome (clinical); "Vitamins and Enzymes," by Professor Alessandro Rossi Fanelli, Director of the Institute for Biological Chemistry at the University of Rome (biochemical aspect), and Professor Alfred Vannotti, Director of the Medical Clinic of the University of Lausanne, Switzerland (clinical); "The Antivitamins," by Professor William-Henri Schopfer, Director of the Institute of Botanics at the University of Bern, Switzerland (biological aspect), and Professor Angelo Baserga, Director of the Institute of Semeiology at the University of Ferrara (clinical); "The hypovitaminosis and Inapparent Dystrophy in Clinic," by Professor Georges Mouriquand, Professor of Clinical Child Medicine and Hygiene at the University of Lyon, France; "Blood and Vitamins. Vitamins and Antivitamins in Blood Coagulation," by Professor Henrik Dam, Head of Department of Biochemistry and

ABSTRACTS

Treatment of Pituitary-adrenal Cortical Syndrome in Ketosis of Dairy Cows*

Previous studies by the authors having indicated that ketosis in dairy cattle was due to a temporary hormonal imbalance involving the pituitary-adrenal system, the following studies on the treatment of the syndrome were instituted.

Cortisone.—Seventy-five cows with ketosis were treated with varying doses of cortisone. Small doses given repeatedly (less than 1 gramme) were less effective than one or two larger doses (1·5 grammes). Most cases were cured with one injection of 1·5 grammes cortisone intramuscularly. A few of the more difficult cases required an additional injection of 1 gramme cortisone on the third day and even on the fifth day. Blood glucose rose above normal in 24 hours, remaining high for two or more days before levelling off. Blood ketones returned to normal by the third to fifth day. Milk yield showed greatest improvement after two to three days. Appetite improved in 18 to 24 hours. The authors conclude that " the response to an adequate dose or doses of cortisone is so certain, that it may be stated without fear of contradiction, that cows which do not exhibit a good response either do not have spontaneous ketosis, or the ketosis is complicated by other abnormalities."

Adrenocorticotrophin (ACTH).—Thirty-seven ketotic cows were treated with varying doses of ACTH. This treatment was as effective as cortisone ; the dose need not, and perhaps should not, exceed 300 I.U. of ACTH gel given intramuscularly at one injection.

Compound F (Hydrocortisone).—Four cases of ketosis were successfully treated with compound F in doses ranging from 300 to 600 mg. This was more potent than cortisone and may ultimately be the ideal substance depending on the cost of production.

Deoxycorticosterone Acetate (DCA).—This proved completely ineffective even when given in 2-gramme doses.

Sodium Acetate.—Fifteen cows with ketosis were treated daily with 0·5 to 1·5 lb. sodium acetate given orally for 3 to 10 days. Two recovered without further treatment, the others required cortisone to effect recovery.

Sodium Propionate.—This proved more effective than acetate but less effective than cortisone or ACTH. Eleven ketotic cows received 100 to 500 grammes sodium propionate daily for 8 to 10 days. Six cows showed a good recovery, the remainder having to receive further treatment with cortisone or ACTH. ACTH, cortisone and compound F were so effective that supplementary glucose injections were not necessary. Growth hormone, co-enzyme I and adenosine triphosphate intramuscularly, and amino-acids intravenously, were ineffective in the treatment of ketosis.

Blood eosinophil studies were made on normal and ketotic cows and the effect of the various treatments on the eosinophil count was investigated. Adrenalin subcutaneously (5 ml. of 1 : 1,000 solution) produced a decided eosinophil fall in normal cows but not in cows with ketosis indicating a malfunction of the pituitary-adrenal system.

It is concluded that ACTH or cortisone or compound F in adequate dosage are the treatments of choice for ketosis of dairy cows. A. T. C.

[The abstractor has been informed that both cortisone and ACTH will be available to veterinarians in the U.S.A. in the near future at a cost which will make the above treatments entirely economic.]

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Bhaduri's Test for Pregnancy in Farm Animals*

Test on the faecal extracts from 18 pregnant cows gave 17 positive tests, using the male toad (*Bufo melanostictus*) as a test animal. When, however, extracts of faeces of 58 non-pregnant animals (including cows, buffaloes and bullocks) were tested, 47 positive results were obtained. The authors conclude that in some localities there are substances present in the faeces of non-pregnant animals which cause spermiation in the male toad, and that these substances are not, as Bhaduri believed, confined to the faeces of pregnant animals. The Bhaduri test therefore is not reliable for the diagnosis of pregnancy in cows. A. T. C.

*** Pituitary-adrenal Cortical Syndrome in Ketosis of Dairy Cows. Treatment with ACTH, Cortisone, Compound F and other Steroids, Acetate and Propionate, and Studies of Eosinophil Levels, Adrenalin Tests and the Effects of Cortisone and ACTH on Normal Cows.** Shaw, J. C., Hatziolos, B. C., Leffel, E. C., Chung, A. C., Gill, W. M., & Gilbert, J. (1952). *University of Maryland Agric. Exp. Sta. Misc. Publ.* No. 139, June, 1952. 19 pp.

*** Note on Bhaduri's Test for Pregnancy in Farm Animals.** Rao, N. S. K., & Krishnamurthy, H. V. (1952). *Current Sci.* **21.** 196–197.

Nutrition, Polytechnic Institute of Copenhagen, Denmark (Nobel Prize 1943 for medicine and physiology): " Heart and Vitamins," by Professor Giulio Sotgiu, Director of the Medical Clinic at the University of Bologna.

Programmes and participation forms may be obtained on application to: Consiglio Nazionale Delle Ricerche, Segreteria della Giornata della Scienza, Piazzale delle Scienze, 7, Roma (Italy).

NIGERIA'S LIVESTOCK INDUSTRY

Nigeria's Council of Ministers has approved the recommendations of a conference called at Lagos in September, 1952, to prepare a statement of livestock policy and consider the report of the Nigerian Livestock Mission appointed by the Secretary of State for the Colonies in 1948.

The most important of the new measures proposed is that a land use survey be undertaken as soon as possible. An inter-departmental team will consider how this can best be done and contact has already been made with the World Land Use Survey Commission. Other important features of the policy recommend:

(1) the introduction of legislation to enable hides and skins baled for export to be inspected and those below grade rejected;

(2) an enquiry by the Co-operative Department into the share of the ultimate proceeds from hides and skins sales in Nigeria which goes to the seller of the animals;

(3) experiments in meat canning and preserving, and research into the possibilities of marketing the products over a wide area.

The Council of Ministers endorsed the conference's view of the 1948 Mission's report, which was that the development of livestock industry in recent years had been soundly based and that no revolutionary change in policy was called for, but that the Mission's thought-provoking report had been a helpful stimulus and its members' visit of benefit. Some of the Mission's proposals have already been implemented: a pasture research expert has been appointed, piggeries have been established, a hides and skins improvement service has been introduced and market facilities improved.

"Animal products are of great importance in Nigeria's economy," says *Commonwealth Survey*, from which the above information is taken, and adds: "Most of the cattle and sheep are in the Northern Region, where there are over 5,000,000 cattle, but there are large herds elsewhere. About 1,000,000 cattle and 6,000,000 sheep and goats are slaughtered each year, and practically all the meat is eaten within the country. Nigeria is, however, the most important colonial producer of hides and skins and in 1951, valued at just under £8,000,000, they constituted the country's seventh largest export.

" Large numbers of pigs are also reared and a Government-operated bacon factory has been in operation since 1940. A scheme to utilise milk from the nomadic herds in the North for increased production of ghee (clarified butter) has been begun, and is hoped in time not only to increase Nigeria's supplies but also to provide an exportable surplus."

REVIEW

[Wright's "Veterinary Anaesthesia." (Third Edition: 1952.) Published by Baillière, Tindall & Cox. Price 21s.]

The third edition of this well-known book will be welcomed as the most recent publication on the subject of veterinary anaesthesia. Much of the text of the previous edition has undergone extensive revision and there are many important additions to the original subject matter.

As in the earlier editions the chapters on local, regional and spinal analgesia contain a concise, well-balanced account of the procedures and agents employed, and are adequately illustrated. It is perhaps to be regretted that the term "anaesthesia" has been retained in reference to these techniques.

The problems presented by the large-animal patient, and the current methods of anaesthesia for farm animals are well presented. These chapters will again form a reliable guide to all who may be called upon to produce insensibility to pain in the large-animal patient. The characteristic properties of the recently introduced drugs "Anavenol" and "Anavenol-K" are reviewed, and some actual case records given to illustrate the reasons underlying the opinions expressed concerning the usefulness of these agents.

Many of the types of apparatus described for the administration of volatile and gaseous anaesthetic agents are of very unsatisfactory design. The importance of a wide bore delivery tube and reservoir bag has been overlooked, although they are mentioned and illustrated in reference to Heney's work on "Trilene." On page 53 Heney's apparatus is described as a "modified Boyle-Mushin apparatus," while the photographs show only a flowmeter, Boyle bottle, and Magill attachment.

"Closed circuit" technique using cyclopropane, as described by Gregory, is discussed, but no reference is made to the use of the closed circuit technique for thoracotomy. The reader is given the impression that some type of mechanical positive pressure inflation apparatus is a necessity if intrathoracic surgery is to be attempted, whereas it is in fact debatable whether such a mechanical device is even desirable.

The book contains no reference to the use of relaxant drugs, and gives no indication of possible future developments in veterinary anaesthesia.

Busy practitioners will find this book to be useful for quick reference purposes. The veterinary student, with possibly more time available in which to study the subject, will regret that more attention is not given to basic physiology, an appreciation of which is essential if veterinary anaesthesia is to be more than the application of "rule-of-thumb" techniques.

Derbyshire N.F.U. has appointed a special livestock sub-committee to consider emergency slaughtering arrangements if restrictions are imposed should foot-and-mouth disease occur again in the county. This should do much to alleviate the difficulty experienced by many farmers during 1952 in marketing pigs.—*Meat Trades' Journal.*

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A warning to sterilise all food fed to pigs to reduce the risk of foot-and-mouth disease was made by Mr. T. Whyte Stobo, Divisional Veterinary Officer, at a meeting at Market Rasen, Lincs, held by the F.U. and the Small Pig Keepers' Council.

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Only three years after the founding of the Colne Valley and Meltham Fox Club, the 100th fox was killed by a party of four Meltham men at Royd Edge Quarry, Meltham, near Huddersfield.

IN PARLIAMENT

Supplementary Estimate for Control of Diseases of Animals

On March 18th, with the House of Commons in Committee of Supply, the Joint Parliamentary Secretary to the Ministry of Agriculture and Fisheries (Mr. G. R. H. NUGENT), speaking to the motion that a supplementary grant be made on the Ministry's vote, said in the course of his remarks that the main item concerned the eradication of diseases of animals, requiring a Supplementary Estimate of £3,250,000. "I expect that the Committee would like a brief explanation of why we need that very large extra sum. The details given show that the first item for which we require additional money is for the Attested Herd Scheme, in respect of which we require an additional £600,000. This scheme is going ahead rather faster than we estimated, and by the end of last year we had about 3,700,000 cattle attested. That is nearly 40 per cent. of the total cattle of the country. I am sure that hon. Members will be very glad to have that information."

Mr. A. WOODBURN: "Are they dairy cattle only?"

Mr. NUGENT: "No, all cattle. It is because the scheme has been going ahead rather faster than we expected that we require this extra money.

"The second item under this head is additional compensation for foot-and-mouth disease. The Estimate provides for a token figure of £110,000, and we are asking for a Vote of £2,400,000. This is a story with which all hon. Members are familiar. We had an exceptionally heavy incidence of foot-and-mouth disease during 1952, particularly in April, May and June. It was one of the heaviest that the country has ever experienced. We have had 458 outbreaks in the 11 months up to February. I am glad to be able to say that there has been a very substantial reduction in the incidence of outbreaks in the past five months though they are still enough to cause anxiety."

Mr. R. T. PAGET: "Can the hon. Gentleman say what has been the average cost of outbreaks of foot-and-mouth disease over a number of years?"

Mr. NUGENT: "I have some figures for the cost over the past few years which may be the figures which the hon. and learned Member may like to have.

"The cost in 1947-48 was £68,000, in 1948-49 £86,000, in 1949-50 £54,000 and in 1950-51 £72,000. These are all round figures. In 1951-52, when the recent outbreak started, the cost went up to £439,000, and this year it is up to the figure which is now before the Committee. It is an incidence of very exceptional severity, and we sincerely hope that it will not recur.

"The next item for which we require a Supplementary Estimate is for compensation for fowl pest. There again the incidence of the disease has been higher than we expected, especially in the latter part of the year—in December and January—when we had more than 400 outbreaks. Perhaps I should tell the Committee that the incidence has been even higher than we expected when we prepared the Supplementary Estimate so that even now that Estimate may not quite cover the full cost of compensation.

"In addition, there are miscellaneous items for dealing with these outbreaks—expenditure on disinfection, slaughter, etc. On the other side of the picture, under "Appropriations in aid," there is a recovery of £370,000 for carcases which have been salvaged, and that to some extent meets the considerable additional expenditure.

"The other items are of a minor nature. The item relating to salaries, £100,000, is mainly on account of increased salary scales in the National Agricultural Advisory Service and the National Milk Testing Service. A certain amount of additional veterinary staff were kindly seconded to us from Eire and Northern Ireland to help with the outbreaks of disease."

Replying to a brief debate, Mr. NUGENT said that there were now 96,000 attested herds, with 3,000 supervised herds. That was a very good story. In regard to combating foot-and-mouth disease, they were most anxious to co-operate as closely as possible with FAO and other European bodies on epizootic research. "We are most anxious to co-operate as closely as we can with these bodies, because there is no doubt at all that the disease has come over here from France, where there has been a very great incidence. Not only does it come by birds carrying it, but quite possibly the virus is carried over in the wind.

"The Gowers Committee have been assiduously dealing with this matter, but I cannot forecast when they will be making their report. I know they felt it necessary to take a great deal of evidence in this country, and before they finish they wish to visit the main countries where foot-and-mouth disease is dealt with in an effective manner, including the United States and the Argentine

as well as European countries. I think we can be confident that when their report is submitted to my right hon. Friend it will me something really comprehensive and authoritative."

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Questions

Siting of Slaughterhouses (Committee)

Captain Duncan (March 17th) asked the Secretary of State for Scotland whether he can now announce the names of the members of the committee who are to look into the siting of slaughterhouses in Scotland.

Mr. J. Stuart: The Chairman of the Committee will be Sir John Handford, C.B., O.B.E., formerly Assistant Under-Secretary of State for Scotland. The names of the other members are:

Dr. James W. Macfarlane, Vice-Convener of Renfrew County Council.

Mr. N. M. Paterson.

Mr. R. Howat, Department of Health for Scotland.

Mr. W. J. M. Menzies, Ministry of Food.

Mr. H. Whitby, Department of Agriculture for Scotland.

The Committee's terms of reference are:

"to prepare a plan recommending in what localities, subject to a policy of moderate concentration, slaughterhouses (other than in bacon factories) should be sited for the slaughter in Scotland of cattle, sheep and pigs; to recommend an order of priority for new works and major reconstructions; to make recommendations on the general principles of siting and the facilities that should be provided in these slaughterhouses; and to report on the changes that may be necessary in existing legislation to secure the central regulation of siting and design of slaughterhouses."

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Government Slaughterhouses (Use of Humane Killer)

Mr. Peter Freeman (March 18th) asked the Minister of Food how many animals of each variety, separately, were killed in Government slaughterhouses with the use of a humane killer last year; and how many were not.

Dr. Hill: Standing instructions at all slaughterhouses used by my Department require that all cattle, calves, sheep and pigs must be stunned by a mechanically operated instrument before slaughter except in the case of animals slaughtered by the Jewish or Mohammedan methods. The numbers slaughtered by the Jewish and Mohammedan methods in 1952 were 73,000 cattle, 16,000 calves, and 129,000 sheep and lambs, representing about 2 per cent. of the total number of these animals slaughtered.

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Post Office Cats (Maintenance Allowances)

On March 18th the House made fine play with the Post Office cat, Captain Orr providing it with this rare opportunity on that date when, amid constant laughter, the following sallies were exchanged:—

Captain Orr: May I ask the Assistant Postmaster-General when the allowance payable for the maintenance of cats in his Department was last raised; what is the total amount involved; what is the present rate per cat in Northern Ireland; and how this compares with the rate in London.

Mr. Gammans: There is, I am afraid, a certain amount of industrial chaos in the Post Office cat world. Allowances vary in different places, possibly according to the alleged efficiency of the animals and other factors. It has proved impossible to organise any scheme for payment by results or output bonus. These servants of the State, are, however, frequently unreliable, capricious in their duties and liable to prolonged absenteeism.

My hon. and gallant Friend has been misinformed regarding the differences between rates for cats in Northern Ireland and other parts of the United Kingdom. There are no Post Office cats in Northern Ireland. Except for the cats at Post Office Headquarters who got the special allowance a few years ago, presumably for prestige reasons, there has been a general wage freeze since July, 1918, but there have been no complaints!

Captain Orr: How does my hon. Friend account for the fact that no allowances are payable for cats in Northern Ireland? Is it because the post offices there are more sanitary, and will he say what happens if a cat has kittens? Is there a family allowance payment?

Mr. Gammans: There are no cats in Northern Ireland, I presume, because there are no mice in post office buildings. With regard to the children's allowances, I am afraid there is none. But the head postmasters have full discretion to give a maternity grant.

Mr. Rankin: Can the Minister tell us whether his Department provides an adequate maternity service?

Mr. Gammans: Very adequate.

Miss Ward: Can my hon. Friend say whether this is one of the occasions on which equal pay prevails?

Mr. Gammans: Equal pay has been accepted both in principle and in practice.

Captain Orr: In view of the unsatisfactory nature of the reply, I propose to raise this matter again.

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Medical Auxiliaries (Qualifications)

Mr. Turner-Samuels (March 19th) asked the Minister of Health to make a statement at an early date on the implementation or otherwise of the Cope Report.

Mr. Iain Macleod: Yes, Sir. As the result of discussions with the professional bodies of medical auxiliaries, my right hon. Friend the Secretary of State for Scotland and I are satisfied that there is insufficient agreement on fundamental matters to proceed with statutory registration on the lines proposed by the Cope Committees. We intend, therefore, as soon as possible to make regulations, using the power of Section 66 of the National Health Service Act, 1946, and Section 65 of the National Health Service (Scotland) Act, 1947, to prescribe qualifications for medical auxiliaries for the purpose of employment in the National Health Service. We shall shortly give the professional and other bodies concerned an opportunity to comment on an outline of the regulations proposed.

Mr. Turner-Samuels: I want to thank the Minister for his statement and ask him whether, now that this Report is not to be implemented, he will consider the question of physiotherapists and other medical auxiliary service practitioners who have been previously affected as a result of the Report? For instance, a number of experienced physiotherapists have been unjustly refused employment under the National Health Service administration in hospitals because they were not members of a particular organisation. Will the Minister consider that matter, and have it examined and corrected?

Mr. Macleod: I am aware of the difficulties of medical auxiliaries and particularly of the physiotherapists to whom the hon. and learned Gentleman refers. I intend, when making the regulations, to withdraw the temporary instructions given in August, 1951, and I will do everything I can to see that the regulations which I propose are fair to all the associations concerned.

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Sheep Worrying

Sir L. Ropner (March 19th) asked the Minister of Agriculture the approximate number of sheep killed by dogs during 1952.

Sir T. Dugdale: According to reports from county councils, 5,844 sheep were killed by dogs in Great Britain during 1952.

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Apiaries (Foul Brood Disease)

Mr. Crouch (March 19th) asked the Minister of Agriculture if he will make it a matter of priority to secure a suitable bacteriologist to undertake research into American and European foul brood disease in bees.

Sir T. Dugdale: I have this question well in mind, and I am asking the Agricultural Improvement Council to advise whether any special measures should be taken to encourage the recruitment of scientific staff for research into this disease.

COST OF FOOT-AND-MOUTH DISEASE TO FRANCE

Sir Daniel A. E. Cabot, M.R.C.V.S., formerly Chief Veterinary Officer to the Ministry of Agriculture, said at a meeting in Jersey that although vaccines had been developed, we were still a long way from finding a solution to the problem of foot-and-mouth disease. Referring to the loss in production which the disease could cause, he said that the damage in France last year was estimated at £100,000,000—mainly in lost milk. In 12 months in France, £3,000,000 had been spent on vaccination, which was just the sum spent on slaughter compensation in Britain, where the milk supply remained assured. On one selected day last year in France, it was estimated that there were no fewer than 213,000 infected farms.

NOTES AND NEWS

Diary of Events

April 1st.—The Association of Veterinary Teachers and Research Workers: Joint meeting with the Northern Region, at the University of Liverpool Veterinary Field Station, Leahurst, Windle Hill, Neston, Wirral, Cheshire. Business, 10 a.m.; Symposium on "Skin Diseases," 11 a.m.

April 8th.—Meeting of the Editorial Committee, B.V.A., 2 p.m., to be followed by Executive.

April 8th.—Meeting of the Lancashire Division, B.V.A., at Manchester (The Midland Hotel), 2.30 p.m.

April 8th.—Meeting of the Southern Counties Division, B.V.A., at Bournemouth (Grand Hotel), 6.30 p.m.

April 9th.—Meeting of the Central Division, B.V.A., at the Royal Veterinary College, London, N.W.1, 10.30 a.m.

April 9th.—Meeting of the Section of Comparative Medicine, Royal Society of Medicine, at 1, Wimpole Street, W.1, 6 p.m.

April 11th.—Annual Dinner of the B.R.X. Club, at the Royal Veterinary College, London, N.W.1.

April 17th.—General and Annual General Meetings of the Sussex Division, B.V.A., at Brighton (The Old Ship Hotel), 2.30 p.m. and 8 p.m. respectively.

April 25th.—30th Annual General Meeting of the Association of State Veterinary Officers, in the Auditorium of the Wellcome Foundation, 183-193, Euston Road, N.W.1, 2 p.m.

Aug. 9th—15th.—XVth International Veterinary Congress, Stockholm, Sweden.

Sept. 6th and 12th.—Seventy-first Annual General Meeting and Congress of the British Veterinary Association, at Aberdeen.

B.V.A. Committee and Council Meetings in Edinburgh

At the Royal (Dick) School of Veterinary Studies.

Monday, April 20th.—11 a.m. Organising Committee.
2 p.m. Parliamentary and Public Relations Committee.
3.30 p.m. Home Appointments Committee.

Tuesday, April 21st.—10 a.m. Veterinary State Medicine Committee.
12 noon Finance Sub-committee.
2.15 p.m. General Purposes and Finance Committee.

Wednesday, April 22nd.—11 a.m. Council meeting.

R.C.V.S. Examinations

Wednesday, May 6th.—Animal Management Examination commences at London.
Thursday, May 7th.—Entries for D.V.S.M. Examination due.
Friday, May 8th.—Pharmacology, etc., Examination (Revised Syllabus)—Written Examination.
Monday, May 11th.—Pharmacology, etc. (Revised Syllabus), Orals and Practicals (London and Dublin).
Thursday, June 4th.—D.V.S.M. Written Examination commences at Edinburgh (2 p.m.).
Monday, June 8th.—D.V.S.M. Orals and Practicals.
Thursday, June 25th.—M.R.C.V.S. Written Examinations.
Friday, June 26th.—Ditto.

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XVth International Veterinary Congress

ADDITIONAL FOREIGN CURRENCY

The new limit of foreign currency which a British subject may take abroad is £40. Special Treasury approval will be necessary for any additional currency required by persons attending the XVth International Veterinary Congress in Stockholm. The number of persons who may benefit from these additional facilities is, however, limited. Official delegates sent by Government departments, or with the assistance of such bodies as the Agricultural Research Council, etc., should make application for additional currency facilities through the usual channels.

All other members of the Congress, whether they are representing such bodies as universities, municipal corporations, etc., or whether they are attending privately, if they require foreign currency additional to their basic allowance, should communicate with the Secretary of the United Kingdom Permanent Committee, 9, Red Lion Square, W.C.1, giving full details of whom they are representing, if anybody, and their reasons for requiring such additional currency.

Arrangements have been made for all such applications to be sent by the United Kingdom Committee to the Ministry of Agriculture and Fisheries, who are the sponsoring authority for such applications. It must be understood that no guarantee can be given that any particular application will be successful.

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B.V.A. 71st ANNUAL CONGRESS

Aberdeen, September 6th to 12th, 1953

LIST OF HOTELS*

A number of bedrooms in these hotels have been block-booked over the period of the Congress for the use of members of the B.V.A. and their families. Members should make their own individual arrangements with the hotel of their choice, and should mention that they will be visiting Aberdeen in connection with the Congress.

Name and address	Whether licensed	Facilities (see below)	Terms	
			Bed and breakfast	Full board
Caledonian Hotel, Union Terrace	Yes	ABCDG	22/6	11 gns.
Douglas Hotel, Market Street	Yes	ACD	21/- + 10 per cent.	—
Gloucester Hotel, Union Street	Yes	ACD	21/-	—
Imperial Hotel, Stirling Street	Yes	ADF (B some)	18/6 to 21/-	9 gns.
Marcliffe Hotel, Queen's Terrace	No	ABDEG	17/6	from 7 gns.
Northern Hotel, Great Northern Road	Yes	ACDFG	17/6	—
Station Hotel, Guild Street	Yes	ACDG	from 21/-†	from 37/6 per day

A, Hot and cold running water in all bedrooms; B, Gas or electric fires in all bedrooms; C, Central heating; D, Children taken; E, Games room; F, Dogs taken; G, Garage facilities.

* The information given here has been extracted from the Aberdeen Corporation Publicity Department Register of Accommodation, 1952.

† With private bathroom, 35/-. Single suite, £3/17/6, double suite, 5 gns. daily.

The Braemar Games

As previously notified, this Highland Gathering is to be held on the Thursday preceding Congress week. Those who wish to attend should apply for seating accommodation *before March 31st next* to P. L. Shanks, Mill of Craibstone, Bucksburn, Aberdeenshire.

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PERSONAL

Illness of Professor G. H. Wooldridge.—We learn with much regret that Professor G. H. Wooldridge, Emeritus Professor of Medicine in the Royal Veterinary College, who returned home on Saturday last from an operation, in Westminster Ophthalmic Hospital, from which he was making a satisfactory recovery, is now seriously ill with pleurisy and congestion of the lungs. All will hope most earnestly for such an improvement that his restoration to health may not be long delayed. Any telephone enquiries should be made of Mrs. Reginald Wooldridge, Grimsdyke 1229.

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Retirement of Mr. T. H. Jones, M.R.C.V.S., of Llandilo

In connection with the retirement from practice of Mr. T. H. Jones, of Llandilo, on December 31st last, a colleague writes: "Mr. Jones qualified in 1918 and saw active service in the 1914-18 war in the Middle East, attaining the rank of Captain. In 1921 he started practice at Llandilo, Carmarthenshire, building up an extensive agricultural practice.

"Mr. Jones took an active part in the affairs of the B.V.A. In 1939 he was appointed Secretary of the almost extinct South Wales Division, and before retiring from the position in 1944, had built it up into one of the most active Divisions in the country. He served on Council N.V.M.A. for many years and was a member of the original Survey Committee. He represents the Division on Committees of the Carmarthenshire Agricultural Executive Committee and is the Division's nominee for the Presidency of the Welsh Branch.

"He has taken an active part in Welsh agricultural affairs and is the Honorary Veterinary Surgeon to the Royal Welsh Agricultural Society. He is President of the Llandilo Young Farmers' Club, in whose activities he takes an active interest, and is Master of the Llandilo Farmers' Hunt, whose formation in 1949 was largely due to his efforts.

"He starts his retirement with the best wishes of his colleagues and his many friends in the farming community."

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Mr. Horace Thornton to Advise on Indian Food Hygiene.—*The Newcastle Chronicle* reports that, at the request of the Indian Government, Mr. Horace Thornton, M.R.C.V.S., Newcastle's Chief Veterinary Officer, is to advise the Government of India on the introduction of modern food inspection methods and cattle slaughtering. A recognised authority in his field, Mr. Thornton is consultant to the United Nations World Health Organisation and author of a text-book on meat inspection. Last summer he returned from a year's tour of Europe, Asia and the Americas for the W.H.O. He is due back from his present six-month inspection in June.

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Forthcoming Marriage.—Hawksley—Nicholson.—The engagement is announced between Michael Bruce Hawksley, B.Sc., M.R.C.V.S., youngest son of the late Mr. G. E. Hawksley and of Mrs. V. M. Hawksley, of Beech House, Woodley, Berkshire, and Elizabeth Audrey Nicholson, third daughter of the late Mr. F. C. Nicholson and of Mrs. J. M. Nicholson, of Ashstead, Surrey.

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Births.—Barker.—On March 12th, 1953, to Joyce, wife of Ian R. Barker, B.V.Sc., M.R.C.V.S., St. Peter Square, Hereford, a son, brother for Anne.

Clover.—On March 22nd, 1953, at Portsmouth, to Patricia, wife of Robert Clover, M.R.C.V.S., a son—Julian Robert.

Harris.—On March 19th, 1953, at Kirkby Lonsdale, to Pamela (*née* Ritchie), wife of Tony Harris, M.R.C.V.S., a daughter.

Hignett.—On March 19th, 1953, at Tunbridge Wells, to Pat (*née* Bishop), wife of Peter Hignett, a daughter.

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R.C.V.S. OBITUARY

Walker, James, O.B.E., M.R.C.V.S., DR. MED. VET. (ZUR.), Captain late S.A.V.C., of Maji Majuri, Parklands, Johannesburg, Transvaal, South Africa. Graduated London, March 31st, 1896. Died in Durban, October 5th, 1952.

Dr. James Walker

We are indebted to Dr. E. M. Robinson, F.R.C.V.S., of Onderstepoort, for the information, which we receive with deep regret, that Dr. James Walker died in Durban on October 5th, 1952, at the advanced age of 84 years. He will be remembered largely for his notable tenure of the post of Veterinary Pathologist at Kabete Laboratory, for although he was not its originator he was largely responsible for the development of that institution to the position it ultimately attained in veterinary research in Africa. In recent years Dr. Walker often used to go over to Onderstepoort in connection with matters affecting his practice, and was in good health until shortly before he died.

In the course of his tribute to James Walker in the *Journal of the South African V.M.A.*, of which he is the editor, Mr. Robinson writes: "Dr. Walker, affectionately known to his colleagues as 'Hooky,' was born near Melbourne, Australia, on August 28th, 1868. He took his M.R.C.V.S. diploma in Great Britain in 1896 and subsequently was in military service in South Africa until 1903 when he joined the veterinary department of the Transvaal and was stationed at Ermelo. He was appointed Assistant Government Bacteriologist at Daspoort in 1907 under Dr. Theiler as he then was and later went to Onderstepoort, where he remained until 1917. From June 1st, 1918, he was Veterinary Pathologist at Kabete Laboratory, Kenya, until 1922 when he was appointed Chief Veterinary Research Officer. In 1932 he became Acting Deputy Director (Animal Industry) in Kenya and was honoured for his services by the award of the O.B.E.

"Dr. Walker returned to South Africa in 1933 and was temporarily employed with research work on foot-and-mouth disease in Bechuanaland. Later he started a practice in Johannesburg with which he continued up to the time of his death. The writer was placed under him when he arrived at Onderstepoort in 1913 and looks back with pleasure on a friendship with him lasting almost 40 years. To his widow and children we extend our deepest sympathy in their sad bereavement."

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Death of Dr. W. Horner Andrews

As we go to press with this issue a message reaches us that, as was foreshadowed in the grave announcement made in this journal last week, Dr. William Horner Andrews, formerly Director of the Ministry of Agriculture's Veterinary Laboratory at Weybridge, passed away in South Africa on March 17th. A memoir will appear in an early issue.

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The Late Mr. Douglas Blyth, M.R.C.V.S.

An Appreciation

With the passing of Douglas Blyth we lose one of the fast disappearing type of country practitioner, whose whole life was bound up with the "country"—its animals and its people.

In Essex, where he was reared and where he practised all his life, and in the adjoining counties, he was known as the man to take with one when buying a hunter or 'chaser. His superb horsemanship together with his uncanny knack of choosing the "right sort," and his skill and knowledge of soundness made him much sought after. He was equally happy whether judging a big class of hunters at a county show or when exhibiting a horse himself for a friend. He was well known as one of the regulars in the hunting fields of Essex and Suffolk as well as in the grass country, whilst at point-to-point meetings he had been a very popular and successful rider.

Douglas Blyth qualified in London in 1914 and a few days later was commissioned as a special reserve officer A.V.C. Shortly afterwards he went to France with the Eighth Division. For his services in the field he was mentioned in dispatches in 1917 and again in 1918.

He will be sadly missed by the farmers and hunting folk of his native Essex and nowhere more than amongst the countless numbers of humble people who will remember him for his goodness and kindness when in need or trouble. Yes, Douglas Blyth was a good man and a sportsman. His old friends of the local Old Contemptibles Association, of which he had been President for so many years, mustered in strength when we laid him to rest last week. It was a pathetic but moving episode to see these old stalwarts file past the grave and each one drop a poppy on the remains of their old comrade, who was, in years, the youngest member of the Association.

G. S.

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Calf Rearing Conference in Aberdeen

A conference on calf rearing was held by the North of Scotland College of Agriculture in the Northern Hotel, Aberdeen, on Thursday, March 12th. The principal speakers were Dr. K. L. Blaxter, of the Hannah Dairy Research Institute, Ayr; Mr. D. Thomson, Cessford, Kelso; and Mr. J. T. R. Lockwood, manager of a Ministry of Agriculture experimental farm at High Mowthorpe, Yorkshire. Mr. Maitland Mackie, Chairman of the Governors of the College, presided, and in his introductory remarks pointed out that the theme of the conference, namely, "Beef from the Dairy," was a subject of topical interest and importance. Before the war, 200,000 store cattle were imported from Ireland but that figure has been reduced to about 70,000. As Ireland is the chief source of stores there is now a scarcity in this country, but the difficulty might be overcome by crossing dairy cows with a beef bull.

Dr. Blaxter gave the scientific aspect of calf rearing and discussed in some detail the fundamental concepts in the disease process in white scour. Muscular dystrophy was also mentioned. The talk was illustrated by lantern slides. Mr. Thomson outlined the systems of calf rearing which he has tried and stated that, in his opinion, the Aberdeen Angus was the best bull for producing beef calves from cross cows. He did not like, however, Aberdeen Angus × Ayrshire calves. An experiment using different crosses was described by Mr. Lockwood and, so far, the results indicate that the Friesian is the best dairy animal for crossing to produce beef calves.

The conference was well attended.

ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

ANTHRAX:

Argyllshire.—Charlottan Farm, Glenbarr, Tarbert (Mar. 16).
Ayrshire.—Catrine Holm Farm, Catrine, Mauchline (Mar. 16).
Ches.—Antrobus House Farm, Antrobus, Northwich; Sudlow Farm, Knutsford (Mar. 14); Massey Brook Farm, Lymm, Warrington (Mar. 19).
Cumberland.—Burnfoot, Longtown, Carlisle (Mar. 14).
Derbys.—Top Stydd Farm, Yeaveley, Ashbourne (Mar. 14); Old Queen's Farm, Snelston, Ashbourne (Mar. 18).
Denbighs.—Bryn Bod Farm, Groes, Denbigh (Mar. 18).
Durham.—Aislaby Grange Farm, Aislaby, Eaglescliffe, Stockton-on-Tees (Mar. 13).
Essex.—Moor Hall, Aveley, Purfleet (Mar. 19).
Glos.—Home Farm, Dumbleton, Evesham (Mar. 16).
Hants.—Lyford Farm, Milland, Liphook (Mar. 17).
Hereford.—Poplands Farm, Whitbourne, Bromyard (Mar. 16).
Kircudbrights.—Garrock Farm, Castle Douglas Road, Dumfries (Mar. 17).
Leics.—The Rise, Dundon Bassett, Rugby (Mar. 19).
Midlothian.—Smeaton Farm, Dalkeith (Mar. 14).
Oxon.—Thornley Hall Farm, Waterperry, Wheatley, Oxford (Mar. 14).
Perths.—Newmains Farm, By Perth, Scone (Mar. 16).
Salop.—Sillenhurst Farm, Woore, Crewe (Mar. 16).
Staffs.—Deer Park Farm, Hopton, Stafford (Mar. 19).
Sussex.—Boar's Head Farm, Crowborough (Mar. 14).
Wigtownshire.—No. 2 Holding, Kilfillan, Glenluce, Newton Stewart (Mar. 14).
Yorks.—Kirkby Moor Farm, Kirkby Malzeard, Ripon (Mar. 13); Elm Tree Farm, Carlton, Leyburn (Mar. 16); Barnside Cote, Midhope, Stockbridge, Sheffield (Mar. 17).

FOWL PEST:

Cornwall.—Sunny Corner, Cusgarne, Redruth (Mar. 18).
Norfolk.—" Castle Dene," Wormegay, King's Lynn (Mar. 18).

SWINE FEVER:

Bucks.—Piggeries at St. John's Hospital, Stone, Aylesbury; Allotments, Chalfont Lane, Seer Green, Beaconsfield (Mar. 18).
Ches.—Lane Farm, Willington, Chester (Mar. 16).
Cornwall.—Park Farm, Carn Brea, Redruth (Mar. 14); Springfield, Bray Shop, Callington (Mar. 18).
Denbighs.—Plas Isa Mawr, Roadside, Abergele (Mar. 19).
Derbys.—Westhouse Farm, Westhouses, Derby (Mar. 14).
Essex.—Little Renter's Farm, Tolleshunt Major, Malton (Mar. 13); Bovill Uplands Farm, Mayland, Chelmsford; " Colindale," Bullock's Lane, Great Canfield, Dunmow (Mar. 14); White Lodge Farm, Layer Marney, Colchester (Mar. 17); Bush Farm, Duton Hill, Dunmow (Mar. 18).
Flints.—Cloy Farm, Overton, Wrexham (Mar. 17).
Glam.—Coity Farm, Coity, Bridgend (Mar. 16).
Herts.—7, Garden Walk, Royston (Mar. 19).
Kent.—Slade Farm, Lamberhurst, Tunbridge Wells (Mar. 13); 231, Dale Road, Chatham (Mar. 19).
Lancs.—Shawhead Farm, Lord Lane, Failsworth, Manchester (Mar. 13).
Lincs.—Low Farm, Hemswell, Gainsborough (Mar. 16); 28, North Street, Crowle, Scunthorpe (Mar. 17); Stourton Farm, Stourton, Stourbridge (Mar. 18).
Norfolk.—Manor Farm, South Raynham, Fakenham (Mar. 16); Holly House, Tilney All Saints, King's Lynn (Mar. 17).
Salop.—Downton Farm, Downton, Shrewsbury (Mar. 18).
Staffs.—Mill House Farm, Darnford, Lichfield (Mar. 13); Bank Farm, Roughcote, Coverswall, Stoke-on-Trent (Mar. 14); Huntingdon Farm, Huntingdon, Cannock (Mar. 17); Lodge Farm, Pelshall Road, Brownhills, Walsall (Mar. 19).
Suffolk.—Garland's Farm, Steeple Burnstead, Haverhill; Home Farm, Hopton, Gt. Yarmouth (Mar. 13); Brick Kiln Farm, South Cove, Beccles; Kiln Farm, Playford, Ipswich; Church Cottage, Poslingford, Sudbury (Mar. 16); Fox Farm, Hundon, Sudbury; Sudbourne Farm, Wyverstone, Stowmarket; Norwood Cottage, Head Lane, Great Cornard, Sudbury (Mar. 18); " Mabalin," Lakenheath, Brandon; The Bothy, Cavenham, Bury St. Edmunds (Mar. 19).
Sussex.—Goldbridge Farm, Newick, Lewes (Mar. 16); The Glebe Barn, Albourne, Hassocks (Mar. 17).
Warwichs.—Crowley's Oak, Ullenhall, Birmingham (Mar. 13); Lower Farm, Brandon Lane, Baginton, Coventry; Green Farm, Cornbrook, Warwick (Mar. 16); " Ardencote," Claverdon, Warwick (Mar. 17); School House Dairy Farm, Sutton Coldfield; 120, Holly Lane, Erdington, Birmingham, 23 (Mar. 19).
Worcs.—8, Humphrey Street, Lower Gournal, Dudley; Hill End Farm, Martley, Worcester (Mar. 19).
Yorks.—2, Queen Street, Mosborough, Sheffield (Mar. 13); 53, Commercial Street, Tadcaster (Mar. 14); Kiddle Lane Farm, Barwick-in-Elmet, Leeds (Mar. 16); Copeland, Little Bracken, Watton, Duffield; Arthur Street, York (Mar. 18); Piggeries, Wright's Garage, Easy Road, Leeds, 9; 51, Shepcote Lane Allotments, Tinsley Park, Sheffield, 9 (Mar. 19).

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WARBLE FLY CAMPAIGN INTENSIFIED

A notice has been issued by the Ministry reminding all stock owners and persons in charge of cattle in England and Wales of the order which requires all cattle visibly infested with the maggots of the warble fly to be treated with a derris dressing. The dressings must be repeated at monthly intervals for so long as the maggots continue to appear under the skin or until June 30th, whichever is the earlier. The derris dressing should be applied in such a way that it enters all holes containing warble maggots on the backs of cattle. Particular attention should be paid to outlying stock.

The Ministry points out that considerable losses of milk and meat are caused by warble flies every year. The maggots of the fly also cause a vast amount of damage to hides. About one British hide in every five has open warble holes. In addition, many hides are imperfect because, though the holes may have healed, there are still blemishes and a weakness which limits the uses to which the hides can be put. This means that more leather has to be imported.

There is no doubt, says the Ministry, that if there is a real drive against the warble fly, losses can within the next few years be reduced enormously as in some other countries, and the results to be achieved from thorough dressings will amply repay the farmer's expenditure.

" It is shameful that in such an enlightened nation as Great Britain, which is claimed by many to breed the best cattle in the world, large numbers of animals lose condition each year because of an infestation that can so easily be overcome," the Ministry adds.

PIONEER EFFORT IN THE ISLE OF WIGHT

A drive has begun to eradicate warble fly from the Isle of Wight. The area has been chosen because an island is particularly suitable for such a pioneer campaign. At a meeting of farmers at Newport, called by the Ministry of Agriculture's Animal Health Division, the Ministry's aims were explained, the co-operation of farmers was asked for and the importance of meticulously observing the rules for the dressing of cattle was emphasised.

The Eire Government also has opened a campaign against the warble fly which is estimated to cost the country £1,000,000 each year. It is stated that an animal showing 30 warble fly swellings will show a fall in milk yield of three pints per day; while a beast afflicted by warble will put on only 15 lb. in 43 days against 46 lb. for a cured animal during the same period.

With the use of a derris dressing similar to our own, Cyprus has been freed of the pest, and it has almost disappeared from Denmark and Holland.

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An Order has now been laid in draft before Parliament which provides that from May 1st, 1953, in the Brighton, Sheffield, and Southampton areas, and from November 1st, 1953, in the Stoke-on-Trent area, all milk sold by retail must be " specially designated milk." After the dates in question therefore, only milk of the designations Pasteurised, Sterilised, or Tuberculin tested, or, until September 30th, 1954, Accredited milk from a single herd, may be sold by retail.

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On Friday of last week Eastbourne magistrates ordered two dogs to be destroyed after witnesses had stated they had caused the death of 25 sheep on the Downs at Eastbourne on the night of March 6th.

HARRY STEELE-BODGER MEMORIAL FUND

The Appeal Committee are indeed grateful to all those, both within and without the profession, who have contributed to this fund in such generous measure.

With the further contributions expected the sum achieved will provide a worthy and fitting memorial to one who did so much for the veterinary profession and agriculture as a whole.

The subscription lists will close on April 30th, but in the case of organisations and societies not meeting before that date the Hon. Treasurer will be pleased to accept donations later.

Lists of future contributions received will be published in *The Veterinary Record* on April 11th and 25th, and the final list on May 9th.

All donations should be sent to
S. L. Hignett,
Steele-Bodger Memorial Fund,
British Veterinary Association,
36, Gordon Square,
London, W.C.1.

Cheques, etc., should be made payable to the "Steele-Bodger Memorial Fund."

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Eighth List of Donations

	£	s.	d.
Total announced on March 14th	2,808	14	7
Mr. H. F. M. Aitken, Mr. L. G. Donald, Mr. E. G. Murray, Mr. A. Sutherland and Mr. J. Young (North Scotland)	6	1	0
Alrewas and District Horticultural and Agricultural Society	8	3	0
Mr. R. M. Arnold (Kingston, Jamaica)	3	3	0
Mr. and Mrs. R. W. Bennett (Sutton Coldfield) ...	1	1	0
Mr. H. C. Busby (Bonehill, Tamworth)	1	1	0
Cambridge University Veterinary Society	2	6	6
Messrs. S. H. Cannon and Co. (London)	5	5	0
Mr. M. L. Dartnall (Cheltenham)	1	1	0
Mr. D. G. Earnshaw (Khartoum)	1	0	0
Eastern Counties Veterinary Society	15	15	0
Mr. R. C. U. Fisher (Farnborough)	1	1	0
Miss C. M. Ford (Loughborough)	1	1	0
Mr. John Frost (Sutton Coldfield)	3	3	0
Mrs. Hawkins (Sutton Coldfield)	5	0	0
Mr. W. W. Lang (Brigg)	2	2	0
Mr. A. C. Lewis (Old Harbour, Jamaica)	2	2	0
Mr. J. Lyon (Aberdeen)	2	2	0
Mr. E. G. M. Mortimer-Matthews (Aldridge, Staffs)	1	1	0
Mr. G. E. Pearce (Lichfield)	1	1	0
Mr. and Mrs. J. W. R. Pearce (Tilehurst)	2	0	0
Miss Penrose-Fitzgerald (Hull, Canada) (10 dollars)	3	8	7
Miss J. M. Peters (Manchester)		2	6
Mr. D. E. Pugh (Swansea)	3	3	0
Royal Veterinary College Students' Union Society	25	0	0
Mr. G. F. Smith (Beccles)	1	1	0
Mr. Ian M. Smith (Redhill)	1	1	0
Mr. R. A. Smith (Sutton Coldfield)	2	2	0
Society of Practising Veterinary Surgeons	105	0	0
South Wales Veterinary Association	10	10	0
Tamworth and District Canine Society	5	5	0
Tamworth N.F.U.: Subscriptions received through the Branch Secretary, Mr. R. H. Robinson. Mr. F. G. Allton (Tamworth) Bolebridge Garage (Tamworth) Mr. G. T. Brisco (Tamworth) Mr. H. G. Brisco (Tamworth) Mr. T. A. Busby (Tamworth) The Misses E. J. and D. M. Carter, (Haunton) Mr. J. Edwards (Burton-on-Trent) Mr. J. R. Gilman (Tamworth) Mr. K. Granger (Drayton Bassett) Mr. W. L. Hemus (Drayton Bassett) Mr. J. Hopkins (Sutton Coldfield) Miss H. Inge (Tamworth) Miss M. C. Inge (Tamworth) Mr. and Mrs. J. P. Morrison (Bonehill) Mr. E. Phillips (Tamworth) Mr. A. Sharrett (Tamworth) Mr. J. B. Stonier (Tamworth) Messrs. A. Tidy and Son (Middleton) Mr. W. H. Tidy (Middleton) Mr. T. C. Wathes (Hurley) Mr. Jack Wilson (Newton Regis) Messrs. James Wilson and Son (Tamworth)	31	13	0
Tamworth N.F.U. Social Committee	26	5	0
Tamworth Young Farmers' Club	2	2	0
Mrs. Terry (Sutton Coldfield)	1	0	0
Veterinary Council of Ireland	52	10	0
Professor Westermarck (Helsinki)		17	2
Mr. Edwin White (Four Oaks, Warwicks)	10	0	0
	£3,155	4	4

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SHIRE HORSE SHOW: INCREASED ENTRY

It is gratifying to find that at Derby, this year's entry for the Shire Horse Society's show, held on March 18th, was 126 as compared with 107 last year. Most encouraging of all was the increase from 26 to 43 in the female classes, which is regarded as a good omen for the future of the breed. Stallions, too, were slightly up on last year, but geldings were down.

The Stallion Championship was won by Grange Wood Cliffords What's Wanted, a five-year-old shown by Mr. G. Richardson, of Moreton-in-Marsh, Gloucestershire, which was reserve champion last year. Reserve was the dark-grey four-year-old, and 1952 champion, Sunderland's Sterope, from the Shropshire exhibitors J. M. Belcher and Son, of Newport.

Last year's placings were also reversed in the Gelding Championship, when the six-year-old dark-grey Heaton Silver Lad, shown by J. and W. Whewell, of Radcliffe, Lancashire, unbeaten last season, had to give way to Copper, a five-year-old and last year's reserve, shown by Offilers Brewery, Limited, of Derby.

In the female classes the premier award went to Mr. T. Marsh, of Great Haywood, Staffordshire, with his four-year-old home-bred Great Haywood Lady Lincoln. Reserve was Mr. W. Salt's six-year-old Dolwallter Empress from Uttoxeter, Staffordshire.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

I.—STILBOESTROL IMPLANTS FOR PERIANAL TUMOURS

Sir,—I was very interested to read the article by Miss James in *The Veterinary Record* of last week. Last year, a dog which had a widely ulcerating perianal tumour, and was not suitable for surgical treatment, was given 20 mg. of stilboestrol intramuscularly, once a week. In addition, 3 mg. of stilboestrol were administered daily by mouth. There was regression to some extent, and complete healing of the ulcer in three weeks. Within a month it had increased in size again and the ulceration had recurred. The previous treatment was repeated three times, with subsequent relapses. On the fourth occasion, 20 mg. of stilboestrol were given intramuscularly, and 30 mg., in the form of two pellets, were implanted subcutaneously in the neck, with an Arnold injector. One month later, there was no ulceration and the growth seemed quiescent. The owner was told to bring the dog back when she could no longer feel the pellets. This occurred in five months. The dog has now had its third injection of two pellets, the growth remaining static throughout. The injection is quick and simple. I am hoping that the quiescence of the growth will be maintained indefinitely.

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II.—RHODODENDRON POISONING IN THE GOAT

Last year, during a Brains Trust of the Society of Women Veterinary Surgeons, I described a treatment for rhododendron poisoning in the goat. During the last seven years I have treated 16 goats and kids for rhododendron poisoning, with only one fatality. The treatment is extremely simple, 1 to 3 grains of morphine being injected subcutaneously, according to the size of the goat. All cases, except one, which was practically dead at the time of injection and died before I left, were up and taking food within four hours of injection. Two cases had a slight relapse on the second day, but responded very quickly to a second injection. Several of the cases treated have been very young kids, unable to stand and lying grinding their teeth, with green foam around their muzzles. The response is spectacular, though I feel that as soon as vomition has ceased, the administration of a purgative would be rational and decrease the likelihood of a relapse.—Yours faithfully, Joan N. Milnes, 83, Birkby Lodge Road, Huddersfield. *March 21st*, 1953.

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ELECTRO-THERAPY IN EQUINES

Sir,—Treatment by rhythmic muscular contractions, a treatment I have endeavoured to introduce to the veterinary profession, was referred to in the discussion on Mr. Gold's paper "The

Technical and Practical Application of Electro-therapy in Equines" reported in your issue of November 8th, 1952.

In the short space of a letter there is only room to make brief unsupported statements. I am, therefore, lodging with you details of 15 cases, from those I have treated, to support the assertions I am about to make.

I am grateful to Dr. Fraser for his very generous tribute to the apparatus which I have spent many years in perfecting, but he goes on to say:—

(1) ". . . I do not feel that this apparatus has a wide application in the treatment of equines . . ."

and

(2) ". . . It has not been found to be satisfactory in the treatment of tendons. . . ."

I disagree on these two points:—

(1) This treatment has a wide application. Injuries to joints, ligaments and muscles are a frequent occurrence in race-horses, polo ponies and hunters. In this field, treatment by rhythmic muscular contractions will effect complete cures more frequently and very much more quickly than any other form of treatment in use at the present time. This opinion is based on 23 years' experience with every form of electro-therapy, and is supported by the results obtained in case histories numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 14 supplied to you.

(2) I refer to case histories numbers 11, 12, 13 and 15 which show excellent results when tendon injuries are treated early. Time might prove that immediate treatment by rhythmic muscular contractions is the solution to these cases: alternatively, it might prove that the results so far gained are the exception rather than the rule.

I enclose extracts from letters from a user of this apparatus in South Africa. The results obtained there can only be described as spectacular.—Yours faithfully, C. L. Strong, 22, Welbeck Street, London, W.1. *March 21st*, 1953.

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SOUTHERN RHODESIAN VETERINARY ASSOCIATIONS

Sir,—Last year I wrote a criticism of the socialised state veterinary club system in New Zealand.

During a recent tour of Southern Rhodesia I had the opportunity to compare the above scheme with that of New Zealand.

The Southern Rhodesian scheme has none of the disadvantages of the permanent state veterinary club system in New Zealand, which I am convinced is not to the ultimate good of our profession. Firstly, it is not a state scheme but a business arrangement between the veterinary surgeon and the local Farmers' Association, which does its own advertising for candidates, and is not controlled by a junta of centralised administrators. The Southern Rhodesian Government has given an undertaking to pay a subsidy to any club which so desires of £625 per annum for three years. I am informed by the Secretary of the Rhodesian National Farmers' Union that he does not think that any of the present established associations will call on any part of the Government subsidy, which is being granted to encourage the outlying and less closely settled areas. This subsidy does not mean Government control in any way. The veterinary surgeon is guaranteed the sum of £1,250 per annum. If he makes that or more in fees, he keeps it himself; if not, the local association makes it up to £1,250.

While there is a committee of farmers in each local association, the veterinary surgeon is a free agent and can attend to the animals of non-members, provided that preference is given to those of members. While the committee exists, the practitioner is not "farmer controlled," and meets the committee not as their employee, but as a professional man who is fulfilling a contract. I had the opportunity of discussing this scheme with professional colleagues and with members of the farmers' associations and I was impressed with their unanimity in approval of the scheme. While at the end of the three years' contract there is nothing to prevent a further contract being arranged, the bias seems to be that if the veterinary surgeon has established himself satisfactorily, he will probably desire to become a private practitioner on his own and farmers generally approved this view. There is certainly no idea of converting these local contracts into a state scheme, with the veterinary surgeon as a salaried official.

The associations which have advertised for veterinary surgeons are in the northern part of the country, where mixed farming with dairying is the vogue and where distances are not excessive. The centres are attractive small towns with the exception of the city of Salisbury. They are in healthy areas, and the Southern Rhodesian farmer is one of the most hospitable and friendly men in existence. I think that these openings will prove satisfactory, especially to a young man as Southern Rhodesia is essentially a young man's country. Under this scheme, the veterinary surgeon is not handicapped in any way as far as initiative and the personal control of his own affairs are concerned. —Yours faithfully, J. L. Stewart. *March 13th*, 1953.

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GRAZING BEHAVIOUR AFTER MANURING

Sir,—Under this abbreviated heading I refer to Mr. D. T. Michael's interesting contribution of 21st instant. I beg him not to regard me as an offensive carping critic: that is the last thing I want to be. Perhaps I remain a simple soul in my 48th year of practice.

Groping my way through trees of jargon and side-stepping *p*H, the agronomist and the ecologist, it seems to me that I get a glimpse of the forest beyond. In May, 1949, a piece of fallow land, with certain native or indigenous islands unploughed, was dressed with approved artificial manures and sown with a grass mixture. In July, 1949—within two months—some horses were turned out on this new ley to graze: with big eyes of contentment at first apparently, but their palates did not confirm their first visual pleasure. It seems to me that the feed was extremely nauseous to them. Hence their recourse to the poor quality unmanured islands and later to the Spartan diet of bents, Yorkshire fog, marestail, dandelion and weeds in the wilderness of the foul stubble. Now 1949 was a wonderfully dry year, the rain just did not come. In the absence of other weather statistics I refer to flat-racing records of that year. From May 1st until a solitary cloudburst day at Brighton on September 14th, the monotonous reports from 60 odd venues all over England and including Scottish meetings, described the going as "hard" or "firm." Thus it would appear that no heaven-sent rain descended on the new ley to wash away the nauseous taste of the "artificials" for a long long time. I submit that it was an error of judgment to graze these unfortunate animals on the land at that juncture.

Times and methods change. In my boyhood days and later, when I was an agricultural student at Aspatria, my recollection is that Italian rye-grass mixtures were either broadcast over young wheat in April or sown on fallow land *in August up to mid-September*. The latter ley would then be grazable in spring. Italian rye-grass will stand very heavy manuring. That I accept, but the incidence of grazing requires prudence. In this connection I wonder if any other fellow-practitioners share my apprehensions, as follow. Over the years I have noted a large number of cases of hard "grass-cough" and quite a number of cases of pulmonary emphysema in horses grazing on leys when the *bloom is on the Italian rye-grass*. I suppose in the fashion of to-day it could be called an allergic condition calling for antihistamine plus the very newest thing in antibiotics. For my part I prefer to sidestep, again, the bloom on the rye-grass.

Another grazing problem. A Yorkshire trainer friend of mine (now unhappily passed over) bought a well-saved stack of hay got from a big pasture that had been heavily manured with sulphate of ammonia. Apparently by reason of this highly nitrogenous dressing he had a number of his animals seized with azoturia.—Yours faithfully, F. W. Chamberlain, 22, Ewell Road, Cheam, Surrey. *March 22nd*, 1953.

DISEASES OF ANIMALS ACT, 1950—GREAT BRITAIN

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period	Anthrax	Foot-and-mouth	Fowl Pest	Sheep Scab	Swine Fever
16th to 28th February, 1953 ...	33	1	11	—	94
Corresponding period in—1952	12	4	6	1	48
1951	24	—	46	—	27
1950	22	2	1	2	—
1st January to 28th February, 1953 ...	207	19	157	—	293
Corresponding period in—1952	74	26	45	1	162
1951	105	15	414	4	151
1950	78	6	28	15	—

Tuberculosis (Attested Herds) Schemes

The number of Attested Herds, *i.e.*, herds officially certified as free from Tuberculosis as at February 28th, 1953, was as follows:—

England	Wales	Scotland	Total (Great Britain)
48,069	26,977	24,029	99,075